Small Business Innovation Research/Small Business Tech Transfer

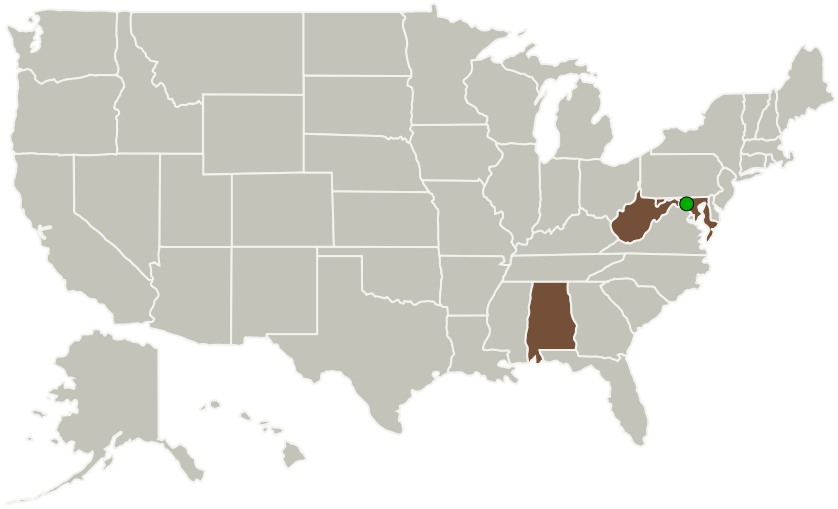
Space Radiation Intelligence System (SPRINTS), Phase I

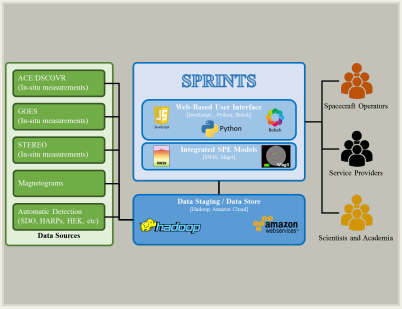
Completed Technology Project (2016 - 2017)

Project Introduction

NextGen Federal Systems proposes an innovative SPace Radiation INTelligence System (SPRINTS) which provides an interactive and web-delivered capability that significantly improves long-range forecasts (2-3 days), all-clear forecasts, and forecast accuracies of solar particle events (SPEs). SPRINTS provides SPE-related data, visualizations, and forecasts that leverage and integrate two complimentary and cutting-edge foundational space weather systems: Magnetogram Forecast (Mag4) and Space Weather Information System (SWIS). The integration of these two capabilities with the addition of an intuitive/interactive user interface and advanced data analysis/forecasting capabilities provides SPRINTS users with the unique ability to effectively explore SPE data and forecasts relevant to their asset(s) and data needs. While leveraging and delivering the forecasts produced by Mag4, the SPRINTS forecast system will use machine-learning and expert-guided statistical analyses to explore new models based, not only on data provided by Mag4 and SWIS, but designed to incorporate other SPE-relevant datasets. SPRINTS also incorporates information about specific space and airborne assets that are entered by individual users and organizations. This information will be integrated with the SPRINTS radiation environment models and engineering models of the predicted impact of SPEs to specific hardware and instruments. SPRINTS serves as a platform to deliver SPE-based operational products covering monitoring, forecasting, and impact analysis of SPEs to help define mission planning, operations, evaluation, and safety.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
NextGen Federal Systems, LLC	Lead Organization	Industry Minority-Owned Business, Historically Underutilized Business Zones (HUBZones)	Morgantown, West Virginia
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland
University of Alabama in Huntsville(UAH)	Supporting Organization	Academia	Huntsville, Alabama

Primary U.S. Work Locations	
Alabama	Maryland
West Virginia	

Project Transitions

June 2016: Project Start

June 2017: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139714)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

NextGen Federal Systems, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

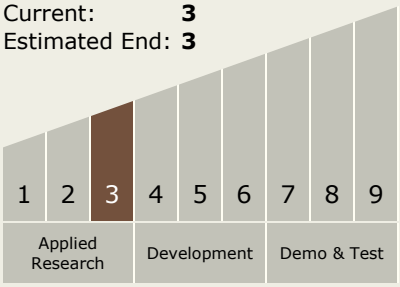
Carlos Torrez

Principal Investigator:

Alexander J Engell

Technology Maturity (TRL)

Start: **3**
Current: **3**
Estimated End: **3**



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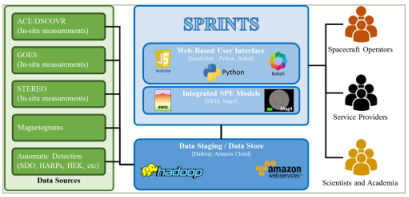
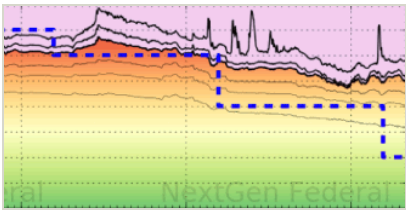
Images



Briefing Chart Image
Space Radiation Intelligence System (SPRINTS), Phase I *(https://techport.nasa.gov/image/133757)*



Final Summary Chart Image
Space Radiation Intelligence System (SPRINTS), Phase I Project Image *(https://techport.nasa.gov/image/129135)*

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.5 Radiation
    - TX06.5.4 Space Weather Prediction

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System